AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method for facilitating instant failover during data packet routing by employing a flooding protocol to send data packets between a source and a destination, the method comprising:

receiving a data packet at an intermediate node located between the source and the destination, wherein the data packet is enroute from the source to the destination;

wherein the data packet is received from a first neighboring node;

determining whether the data packet has been seen before at the intermediate node, wherein determining whether the data packet has been seen before involves examining a sequence number, S_R, contained within the data packet to determine whether the sequence number has been seen before, and wherein determining whether the data packet has been seen before involves examining a record, R, indicating the N possible sequence numbers preceding a highest received sequence number, S_H, that have been seen before; and

if the data packet has not been seen before, forwarding the data packet to neighboring nodes of the intermediate node.

2. (Previously presented) The method of claim 1, wherein forwarding the data packet to neighboring nodes involves forwarding the data packet to all neighboring nodes except the first neighboring node from which the data packet was received.

3 (Canceled).

4. (Currently amended) The method of claim 1 ~~claim 3~~, wherein the sequence number includes one of:

a sequence number inserted into a payload of the data packet;

a sequence number located within an Internet Protocol (IP) header of the data packet; and

a sequence number located within a layer 4 header of the data packet.

5. (Currently amended) The method of claim 1 ~~claim 3~~, wherein examining the sequence number involves looking up a highest received sequence number, S_H, stored at the intermediate node based upon the source of the data packet.

6. (Currently amended) The method of claim 1 ~~claim 3~~, wherein examining the sequence number involves looking up a highest received sequence number, S_H, stored at the intermediate node based upon the source and the destination of the data packet.

7 (Canceled).

8. (Currently amended) The method of claim 1 ~~claim 3~~, wherein determining whether the data packet has been seen before involves:

looking up a highest received sequence number, S_H;

if $S_R > S_H$,

overwriting S_H with S_R,

updating a record, R, indicating which of N possible sequence numbers preceding S_H have been seen before, and

forwarding the data packet to the neighboring nodes;

if $S_H - N > S_R$, discarding the data packet; and

if $S_H \geq S_R \geq S_H - N$, then

if R indicates that S_R has been seen before, discarding the data packet, and

if R indicates the data packet has not been seen before, updating R to indicate that S_R has been seen, and forwarding the data packet to the neighboring nodes.

9. (Original) The method of claim 8, wherein the record, R, is a bit vector of size N.

10. (Currently amended) A computer-readable storage medium storing instructions that when executed by a computer cause the computer to perform a method for facilitating instant failover during data packet routing by employing a flooding protocol to send data packets between a source and a destination, the method comprising:

receiving a data packet at an intermediate node located between the source and the destination, wherein the data packet is enroute from the source to the destination;

wherein the data packet is received from a first neighboring node;

determining whether the data packet has been seen before at the intermediate node, wherein determining whether the data packet has been seen before involves examining a sequence number, S_R, contained within the data packet to determine whether the sequence number has been seen before, and wherein determining whether the data packet has been seen before involves

examining a record, R, indicating the N possible sequence numbers preceding a highest received sequence number, S_H, that have been seen before; and

if the data packet has not been seen before, forwarding the data packet to neighboring nodes of the intermediate node.

11. (Previously presented) The computer-readable storage medium of claim 10, wherein forwarding the data packet to neighboring nodes involves forwarding the data packet to all neighboring nodes except the first neighboring node from which the data packet was received.

12 (Canceled).

13. (Currently amended) The computer-readable storage medium of claim 10 ~~claim 12~~, wherein the sequence number includes one of:

a sequence number inserted into a payload of the data packet;

a sequence number located within an Internet Protocol (IP) header of the data packet; and

a sequence number located within a layer 4 header of the data packet.

14. (Currently amended) The computer-readable storage medium of claim 10 ~~claim 12~~, wherein examining the sequence number involves looking up a highest received sequence number, S_H, stored at the intermediate node based upon the source of the data packet.

15. (Currently amended) The computer-readable storage medium of claim 10 ~~claim 12~~, wherein examining the sequence number involves looking up a highest received sequence number, S_H, stored at the intermediate node based upon the source and the destination of the data packet.

16 (Canceled).

17. (Currently amended) The computer-readable storage medium of claim 10 ~~claim 12~~, wherein determining whether the data packet has been seen before involves:

looking up a highest received sequence number, S_H;

if $S_R > S_H$,

overwriting S_H with S_R,

updating a record, R, indicating which of N possible sequence numbers preceding S_H have been seen before, and

forwarding the data packet to the neighboring nodes;

if $S_H - N > S_R$, discarding the data packet; and

if $S_H \geq S_R \geq S_H - N$, then

if R indicates that S_R has been seen before, discarding the data packet, and

if R indicates the data packet has not been seen before,

updating R to indicate that S_R has been seen, and

forwarding the data packet to the neighboring nodes.

18. (Original) The computer-readable storage medium of claim 17, wherein the record, R, is a bit vector of size N.

19. (Currently amended) An apparatus that facilitates instant failover during data packet routing by employing a flooding protocol to send data packets between a source and a destination, the apparatus comprising:

a receiving mechanism that is configured to receive a data packet at an intermediate node located between the source and the destination, wherein the data packet is enroute from the source to the destination;

wherein the data packet is received from a first neighboring node;

a determination mechanism that is configured to determine whether the data packet has been seen before at the intermediate node, wherein determining whether the data packet has been seen before involves examining a sequence number, S_R, contained within the data packet to determine whether the sequence number has been seen before, and wherein determining whether the data packet has been seen before involves examining a record, R, indicating the N possible sequence numbers preceding a highest received sequence number, S_H, that have been seen before; and

a forwarding mechanism that is configured to forward the data packet to neighboring nodes of the intermediate node if the data packet has not been seen before.

20. (Previously presented) The apparatus of claim 19, wherein the forwarding mechanism is configured to forward the data packet to all neighboring nodes except the first neighboring node from which the data packet was received.

21 (Canceled).

22. (Currently amended) The apparatus of claim 19 ~~claim 21~~, wherein the sequence number includes one of:

a sequence number inserted into a payload of the data packet;

a sequence number located within an Internet Protocol (IP) header of the data packet; and

a sequence number located within a layer 4 header of the data packet.

23. (Currently amended) The apparatus of claim 19 ~~claim 21~~, wherein the determination mechanism is configured to look up a highest received sequence number, S_H, stored at the intermediate node based upon the source of the data packet.

24. (Currently amended) The apparatus of claim 19 ~~claim 21~~, wherein the determination mechanism is configured to look up a highest received sequence number, S_H, stored at the intermediate node based upon the source and the destination of the data packet.

25 (Canceled).

26. (Currently amended) The apparatus of claim 19 ~~claim 21~~, wherein the determination mechanism is configured to:

look up a highest received sequence number, S_H;

if $S_R > S_H$, to

overwrite S_H with S_R,

update a record, R, indicating which of N possible sequence numbers preceding S_H have been seen before, and to

forward the data packet to the neighboring nodes;

if $S_H - N > S_R$, to discard the data packet; and

if $S_H \geq S_R \geq S_H - N$, to

discard the data packet, if R indicates that S_R has been seen before, and to

update R to indicate that S_R has been seen, and to forward the data packet to the neighboring nodes, if R indicates the data packet has not been seen before.

27. (Original) The apparatus of claim 26, wherein the record, *R*, is a bit vector of size *N*.